
**Improvements to
San Tin Interchange
(Contract No. HY/2004/09)**

**Monthly Environmental
Monitoring & Audit Report**

Report No. 12

May 2006

ATKINS

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Executive Summary

Atkins China Limited (ACL) has been appointed by Chun Wo Construction & Engineering Co., Ltd. to implement the Environmental Monitoring and Audit (EM&A) programme for the construction works under Contract No. HY/2004/09 Improvements to San Tin Interchange (hereinafter, the Project).

The construction of the Project commenced since 21st June 2005. This report is the twelfth monthly EM&A report for the Project which summarises the monitoring results and audit findings during the reporting period from 1st to 31st May 2006.

Environmental Monitoring and Audit Progress

The monthly EM&A programme was undertaken in accordance with the EM&A Manual. A summary of the monitoring activities in this reporting period is listed below:

- Weekly site inspections were undertaken jointly with the Contractor and Engineer's Representative (ER) on 4th, 11th, 19th and 25th May 2006. The Independent Environmental Checker (IEC) joined the site inspection on 25th May 2006.
- Noise monitoring at three designated monitoring stations was undertaken on 4th, 9th, 16th, 23rd, 26th and 30th May 2006 during normal working hours; and 5th, 8th & 14th May 2006 during the restricted hour periods on a weekly basis when there were construction activities scheduled during those periods.
- Visual site surveillance for water quality was undertaken three times a week.
- Site inspections for landscape and visual resources were undertaken on 19th and 29th May 2006.

Breaches of Action and Limit Levels

There were three environmental exceedances recorded during the restricted hours noise monitoring on 5th, 8th, and 14th May 2006. However, all the exceedances were proved not to have been caused by the site activities of the Contractor and were attributable to the high ambient traffic noise from San Tin Highway.

Complaint Log

No environmental complaints were received during this reporting period.

Notifications of Summons and Prosecutions

There were no notifications of summons or prosecutions received during this reporting period.

Reporting Changes

This report has been developed in compliance with the reporting requirements for the subsequent monthly EM&A reports as required by the Project EM&A Manual.

Future Key Issues

Installation of viaduct segments will continue in June 2006. Contamination Assessment Report (CAR) of Site A & Site E is expected to be finalised in June 2006.

1 ENVIRONMENTAL STATUS

1.1 Works undertaken during the Reporting Period

The major construction activities undertaken during this reporting period are summarised below:

- Pre-bored H-piling works;
- Laying of drainage pipes;
- Road widening works;
- Trench works;
- Sheet piling works;
- Pier construction;
- Storage and preparation of precast viaduct segments; and
- Erection of precast viaduct segments.

The site plan of the Project is shown in Figure 1. The Contractor's works programme is provided in Annex A.

1.2 Environmental Permit and Licences

There were no changes or clarification to the Environmental Permit (EP-190/2004) during the reporting period.

One Construction Noise Permit (CNP) was issued in May 2006. Details of the CNP are summarised in Table 1.1.

Table 1.1 Details of Permits and Licenses issued in May 2006

Permit / License	Reference No.	Issue Date	Expiry Date
Construction Noise Permit for general construction work	GW-RN0257-06	23 rd May 2006	21 st July 2006

1.3 Environmental Document Submissions to EPD

A summary of the status of the submissions to EPD as provided during the month of May 2006 is presented in Table 1.2.

Table 1.2 Summary of Environmental Submissions to EPD in May 2006

Item No.	Document Title	Date of Submission
1	Monthly EM&A Report No. 11 for April 2006	12 th May 2006

1.4 Environmental Monitoring Locations

Noise monitoring was undertaken at three monitoring stations CM1, CM2 and CM3. The locations are shown on Figure 1. Description of these monitoring stations is provided in Table 1.3.

Table 1.3 Noise Monitoring Stations

Monitoring Station ID	Description	Easting	Northing
CM1	Village house near San Tin Highway	826133	839839
CM2	Village house near San Tin Highway	826291	839918
CM3	Village house near Kwu Tung Road	826605	840076

2 ENVIRONMENTAL MEASURES AND IMPLEMENTATION STATUS

The mitigation measures listed in the Project EIA Report, EM&A Manual and Environmental Permit and the implementation status are provided in Annex B.

The stockpile of potential contaminated soil excavated from Site E, stored next to pier B8 works area was seen to have been removed prior to the submission of the Contamination Assessment Report (CAR) and Remediation Action Plan (RAP) for EPD's approval. The Contractor advised that all the potential contaminated soil previously stored on site has been backfilled into pile cap B8 together with some imported sand fill. No impervious cover or fencing has been provided for the backfilled pile cap area. Thus, they were reminded to implement necessary remedial measures, including:

- Completely covering the backfilled pile cap with impervious sheet;
- Placing sandbags around the edge and on top of the impervious tarpaulin to ensure no water will seep into the backfilled cap; and
- Fencing off the backfilled area with warning sign to notify all workers about the potential land contamination in this area.

3 MONITORING RESULTS

3.1 Noise Monitoring

3.1.1 Noise Monitoring Equipment

The details of the noise monitoring equipment are listed below and the calibration certificates are presented in Annex C:

- Sound level meter ONO-SOKKI LA-5110
- Acoustical calibrator ONO-SOKKI SC-2110
- Hand-held anemometer

3.1.2 Noise Monitoring Methodology

The sound level meter was calibrated with an acoustical calibrator prior to each measurement. It was set on a tripod at 1.2 m above local ground level at the monitoring station. Measurement of the A-weighted $L_{eq(30 \text{ minutes})}$ noise level for normal daytime hours was undertaken. Three consecutive A-weighted $L_{eq(5 \text{ minutes})}$ noise levels were measured for restricted hours monitoring. Wind speed was checked during the monitoring period using the hand-held anemometer to ensure steady wind

speed did not exceed 5 m/s, or gusts did not exceed 10 m/s. After the noise measurement the sound level meter was re-calibrated using the acoustical calibrator.

3.1.3 Noise Monitoring Results

Noise monitoring was undertaken on a weekly basis when noise generating activities were underway. The noise monitoring results obtained in May 2006, during the normal working hours, restricted hours from 1900 to 2300 hours on normal working days and from 0700 to 1900 hours on general holidays, and restricted hours from 2300 to 0700 hours of next day are summarised in Table 3.1, Table 3.2 and Table 3.3 respectively. There were no environmental exceedances of the Action and Limit Levels for noise monitoring recorded during the normal daytime hours within the reporting period but three exceedances were recorded during the restricted hours. Details of the monitoring time period and weather condition during the monitoring period and the graphical presentation of the noise monitoring results are provided in Annex D.

Table 3.1 Summary of Noise Monitoring Results during Normal Working Hours

Date of Monitoring	Normal Hours. Noise Monitoring Results $L_{eq(30 \text{ minutes})}$ noise		
	CM1	CM2	CM3
4 th May 2006	68	73	62
9 th May 2006	68	70	65
16 th May 2006	68	72	64
23 rd May 2006	68	72	--
26 th May 2006	--	--	64
30 th May 2006	68	73	64

Remarks:

- (1) CM2 is a non-façade measurement location. A positive correction of 3dB (A) has been applied to the measured noise level at CM2 according to EPD's guideline.
- (2) The monitoring of CM3 on 23rd May 2006 was postponed to 26th May 2006 due to adverse weather condition.

Table 3.2 Summary of Noise Monitoring Results during Restricted Hours – All days during the evening (1900 to 2300 hours), and general holidays (including Sundays) during the day-time and evening (0700-2300 hours)

Date of Monitoring	Restricted Hours Noise Monitoring Results $L_{eq(15 \text{ minutes})}$ noise		
	CM1	CM2	CM3
5 th May 2006	64	<u>68</u>	62
8 th May 2006	65	<u>70</u>	57
14 th May 2006	63	<u>69</u>	61

Remark:

- (1) CM2 is a non-façade measurement location. A positive correction of 3dB (A) has been applied to the measured noise level at CM2 according to EPD's guideline.

- (2) Underlined figure indicates exceedance of the Limit Level of 65dB(A).
 (3) No restricted hour noise monitoring was carried out between 21st and 31st May 2006 due to adverse weather condition (heavy rain).

Table 3.3 Summary of Noise Monitoring Results during Restricted Hours – All days during the Night-time (2300 to 0700 hours)

Date of Monitoring	Restricted Hours Noise Monitoring Results $L_{eq(15\text{ minutes})}$ noise		
	CM1	CM2	CM3
8 th May 2006	<u>63</u>	<u>69</u>	<u>57</u>

Remark:

- (1) CM2 is a non-façade measurement location. A positive correction of 3dB (A) has been applied to the measured noise level at CM2 according to EPD's guideline.
 (2) Underlined figure indicates exceedance of the Limit Level of 50dB (A).

3.2 Water Quality Monitoring

Visual site surveillances for water quality were undertaken three times a week. Based on the visual inspection results, the Contractor has followed all necessary site practices to maintain the site drainage system and wastewater handling, including:

- Placing sandbags to properly divert the surface runoff to sedimentation tank with adequate capacity.
- Provision of sedimentation tank with sufficient capacity.
- Modification of temporary drainage ditch to ensure proper drainage diversion.
- Regular and prompt removal of stagnant water pools to prevent mosquito breeding.
- Replacing the damaged tarpaulins covering slope and stockpile to prevent soil being washed down by rain.
- Replacing the damaged geotextile to prevent silt and sand being washed in to the catchpit.

The details of the water quality visual inspection reports are provided in Annex E.

3.3 Landscape & Visual Resources

Two site inspections on the landscape & visual resources were undertaken in May 2006.

Insufficient sandbag barriers were provided for the transplantation nursery behind the site office in the N1 Division area. Soil inside the nursery appeared to have been washed down by rain. The Contractor was reminded to provide sufficient sandbags for the transplantation nursery to contain the soil inside the nursery and prevent soil erosion.

Rainwater was logged inside the transplantation nursery in the N2 Division Area that may damage the roots of trees inside the nursery. The Contractor is advised to provide proper drainage such as temporary ditches for the diversion of rainwater to avoid waterlogged soil.

3.4 Ad-hoc Air Quality Monitoring

No ad-hoc air quality monitoring was required during the reporting period.

3.5 Waste Management

The Contractor has adopted a trip ticket system for the disposal of construction wastes. According to the records provided by the Contractor, the disposal of construction waste within the reporting period is summarised in Table 3.4.

Table 3.4 Summary of Waste Disposal Records in May 2006

Waste Type	Destination	No. of Trips	Quantity
C & D Waste	NENT Landfill	17	85 m ³
C & D Waste	WENT Landfill	1	5 m ³
Building debris	CEDD's Tuen Mun Area 38 Fill Bank	92	460 m ³
	CEDD's Tuen Mun Area 38 C&D Materials Recycling Facility	Nil	Nil
Chemical Waste	Collected by Dunwell Enviro-Tech (Holdings) Ltd.	Nil	Nil
Chemical Toilet Waste	Collected by Proenvironmental Services Ltd.	12	-
Sewage Holding Tank Waste	Collected by Waylung Waste Services Ltd.	11	-

4 ENVIRONMENTAL AUDITS

4.1 Site Inspection and Audit

Site inspections were undertaken on 4th, 11th, 19th, and 25th May 2006, and jointly with the IEC on 25th May 2006. Specific locations within the site were identified during the inspection for improvements in proper implementation of the environmental mitigation measures. These include:

- Provision of sedimentation tank with larger capacity to prevent water overflow.
- Modification of temporary drainage ditch to ensure effectiveness of site drainage system.
- Complete coverage of the backfilled potential contaminated soil at Pile Cap B8 and placing sandbags at the edge on top of the tarpaulin to ensure no water will seep into the backfilled cap.
- Prompt removal of stagnant water pools to prevent mosquito breeding.
- Regular replacement of damaged tarpaulin covering slope and stockpile to prevent dust generation and soil being washed down by rain.
- Coverage of bags of cement by impervious sheeting to prevent dust emissions.
- Regular check and replacement of the geotextile sediment filter.

The record of the weekly site inspection findings is provided in Annex G.

4.2 Environmental Exceedances

During the reporting period, there were three exceedances of the limit level during restricted hours noise monitoring recorded on 5th, 8th and 14th May 2006.

Further to investigation and discussion with the ER, the project-related works being undertaken during the measurement period were located at a distance away (at least 150m) from the monitoring stations. The exceedances were due to the high ambient

background noise caused by road traffic on San Tin Highway. Thus, the noise exceedances recorded were found not to be attributable to project works.

Records of the notification of environmental exceedances are provided in Annex H. The Action and Limit Levels for impact monitoring are provided in Annex I.

4.3 Environmental Complaint and Prosecution

During the reporting period, no environmental complaints, prosecutions or summons were received. Cumulative statistics on complaints, notifications of summons and successful prosecutions for the Project are provided in Annex J.

5 FORECAST AND SCHEDULE

5.1 Key Issues for the Coming Months

The key issues with respect to the works in the forthcoming 2 months include:

- Laying of drainage pipes;
- Road widening works;
- Bored piling works;
- Trench works;
- Storage and preparation of precast viaduct segments; and
- Erection of precast viaduct segments.

5.2 Monitoring Schedules for the Next Month

The proposed schedule for noise monitoring in June 2006 is provided in Table 5.1 below:

Table 5.1 Proposed Noise Monitoring Schedule for June 2006

Date	Noise Monitoring Station
5 th June 2006 (Monday)	CM1, CM2 & CM3
13 th June 2006 (Tuesday)	CM1, CM2 & CM3
21 st June 2006 (Wednesday)	CM1, CM2 & CM3
29 th June 2006 (Thursday)	CM1, CM2 & CM3

6 CONCLUSION

There was no environmental non-compliance attributable to the Project works during the reporting period.

There were three exceedances of the Limit Level recorded during the restricted hours within the reporting period. However, they were found not to be attributable to project works.

No environmental complaints, prosecutions or summons was received during the reporting period.